10th Class 2016

Biology	Group-II	Paper-II
Time: 2.45 Hours	(Subjective Type)	Max. Marks: 63

Part-I

2. Write short answers to any Six (6) questions: 12

(i) Define nasal cavity.

Ans Nasal cavity is the hollow space in the nose; opens to the outside through nostrils and divided into two portions by a wall.

(ii) Define vocal cords.

Ans Vocal cords are two pairs of fibrous bands in the larynx that vibrate when the air passes through them and produce sounds.

(iii) Why does blood become thick due to smoking?

Ans The carbon monoxide present in tobacco smoke lessens the oxygen-carrying capacity of haemoglobin. Many other chemicals in smoke increase the production of blood platelets. When platelets are more than the normal numbers, they make the blood thick and it can lead to arteriosclerosis.

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(iv) Define ligaments.

Ans Ligaments are strong but flexible connective tissues that join one bone to bone at the joints.

(v) What are biceps and triceps?

Ans Bicep is a flexor muscle on the front of the upper arm bone, while tricep is an extensor muscle on the back of the upper arm bone.

(vi) Differentiate between flexor and extensor muscle.

Ans Flexor is that muscle which bends a joint, while extensor is a muscle that extends a joint.

(vii) Define predation with an example.

Ans It is an interaction between two animals of different species or between a plant and an animal. In predation, one organism (the predator) attacks, kills and feeds on other organism (the prey) *e.g.,* frog preys upon mosquitoes and fox preys upon rabbit.

(viii) What are the effects of global warming?

Ans Due to global warming, polar ice-caps and glaciers are melting faster than the time taken for new ice layers to form. Sea water is also expanding causing sea levels to rise. Due to melting glaciers, rivers overflow and cause floods.

(ix) What is meant by osmosis?

Ans Osmosis is the spontaneous net movement of solvent molecules through a semi-permeable membrane into a region of higher solute concentration, in the direction that tends to equalize the solute concentrations on the two sides.

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3. Write short answers any Five (5) questions: 10

(i) What are hydrophytes? Give an example.

Ans Plants that are well adapted to survive in or on the waterlogged areas are called hydrophytes, *e.g.*, Lotus, water lily, etc.

(ii) What is hilus?

Ans Hilus is a depression near the centre of the concave area of the kidney, the area through which the ureter, blood and lymphatic vessels and nerves enter / leave the kidney.

(iii) Define dialysis. Name its two types.

Ans The cleaning of blood from the body by artificial ways is known as dialysis. The two main types of dialysis are hemodialysis and peritoneal dialysis.

(iv) What is reproduction? Name its two basic types.

Ans Reproduction is defined as the production of individuals of the same species, *i.e.*, the next generation of species. The two basic types of reproduction are; asexual reproduction and sexual reproduction.

(v) What is difference between self-pollination and cross pollination?

Ans The transfer of pollen grains from the anther to the stigma of the same flower or other flower of the same plant is called self-pollination while cross pollination is the transfer of pollen grains from the flower on one plant to the flower on other plant of the same species.

(vi) What is vector in genetic engineering?

Ans In genetic engineering, vector is the DNA or bacteriophage, etc. that transfers the isolated gene of interest to the host cell.

(vii) What is meant by single cell protein?

Ans The protein content extracted from pure or mixed cultures of algae, yeasts, fungi or bacteria, the micro-organisms grown in fermenters where they produce a high yield of protein, is called single cell protein.

(viii) What is meant by gene therapy?

Ans Gene therapy is a form of therapy that involves inserting one or more corrective genes that have been designed in the laboratory, into the genetic material of a patient's cells to cure a genetic disease.

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4. Write short answers to any Five (5) questions: 10

(i) What is meant by saltatory impulses?

Ans Impulses 'jump' over the areas of myelin going from node to node are called saltatory impulses.

(ii) What are meninges? Write down their function.

Ans Three layers around the brain and the spinal cord are called meninges. These layers protect the brain and the spinal cord and provide them nutrient and oxygen through their capillaries.

(iii) Differentiate between transcription and translation.

Ans The specific sequence of DNA nucleotides is copied in the form of messenger RNA (mRNA) nucleotides. This process is called transcription. The mRNA carries the sequence of its nucleotides to ribosome. The ribosome reads this sequence and joins specific amino acids, according to it, to form protein. This step is known as translation.

(iv) Differentiate between gene and allele.

Ans Gene is a unit of inheritance; consists of the length of DNA that contains specific instructions for the synthesis of a protein molecule. While, allele is an alternative form of gene.

(v) Differentiate between breeds and varieties.

Ans In artificial selection, the bred animals are known as breeds, while bred plants are known as varieties.

(vi) What is meant by analgesics? Give an example.

Ans Analgesics are those medicines which reduce pain *e.g.*, aspirin, paracetamol, etc.

(vii) Define hallucinogens.

Ans Hallucinogens are the drugs that cause changes i perception, thought, emotion and consciousness.

(viii) Differentiate between bactericidal an bacteriostatic antibiotics.

Ans Bactericidal are the antibiotics which work by killir bacteria, while the antibiotics that work by stoppir bacteria multiplying are called bacteriostatic antibiotics.

Part-II

NOTE: Attempt any Three (3) questions.

Q.5.(a) Write a complete note on Pneumonia. (4

Ans For Answer see Paper 2015, (Group-II) Q.5.(a).

(b) How plants remove extra carbon dioxide a oxygen outside? (

Ans For Answer see Paper 2015, (Group-I), Q.5.(b).

Q.6.(a) Explain structure and function of pituita gland. (

Ans **Pituitary Gland:**

other endocrine glands. However, some hormones of this gland act directly on various tissues of body.

Structure and Functions of Pituitary gland:

There are two lobes of pituitary gland, *i.e.*, anterior lobe and posterior lobe.

(a) Anterior Lobe:

It produces many hormones. One of its important hormones is somatotrophin. It promotes the growth of body. If the production of this hormone is diminished during growing age, the rate of growth decreases. This condition is called dwarfism. If this hormone is excessively produced during growing age, it leads to gigantism. If somatotrophin is excessively produced after growing age, internal organs and body extremities alone grow large. This condition is known as acromegaly. Such persons will have large hands, feet and jawbones. Another important hormone secreted by the anterior lobe of pituitary gland is thyroid-stimulating hormone. It stimulates thyroid gland to secrete its hormones. The remaining hormones of anterior lobe influence reproductive organs and also control adrenal glands.

(b) Posterior Lobe:

The posterior lobe of pituitary gland stores and secretes two hormones, *i.e.*, oxytocin and vasopressin. These hormones are produced by hypothalamus.

Vasopressin increases the rate of reabsorption of water from nephrons. When we have low amount of water in body fluids, pituitary gland secretes vasopressin and so more reabsorption of water occurs from nephrons into blood. In this way, body retains water and less amount of urine is produced. On the other hand, when body fluids have more than normal water, there is a decline in the secretion of this hormone. If pituitary gland does not secrete this hormone in the required amount, less water is reabsorbed from nephrons and there is excessive loss of water through urine. This condition is known as diabetes insipidus.

The hormone, oxytocin stimulates the contraction of uterus walls in mothers for childbirth. Moreover, this hormone is necessary for the ejection of milk from breast.

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(b) What is arthritis? Describe its two types. (3)

Ans **Arthritis:**

Arthritis means "inflammations in joints". It is also very common in old age and in women. It is characterized by pain and stiffness in joints. The treatment of arthritis include pain killer and anti-inflammatory medicines. There are many types of arthritis, for example:

1. Osteo-Arthritis:

It is due to degeneration in the cartilage present at joints or due to decreased lubricant production at joints. In this arthritis, fusion of the bones at joint may occur and joints may become totally immoveable.

2. Rheumatoid Arthritis:

It involves the inflammation of the membranes at joints. Its symptoms include fatigue, low-grade fever, pain and stiffness in joints.

Q.7.(a) What is AIDS? Give its causes. (4)

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Ans The most serious and challenging health problem faced by the world today is AIDS. It is a sexually transmitted disease. AIDS stands for Acquired Immune Deficiency Syndrome. It is caused by human immuno deficiency virus (HIV). The virus destroys white blood cells, which results in loss of resistance against infections. It is a fatal disease. It spreads through transfer of body fluids such as blood and semen. Thus the main causes are unprotected sexual activities, use of infected needles or transfusion of infected blood.

(b) Explain binary fission with the help of amoeba. (3)

Ans **Binary Fission:**

Binary fission means "division into two". It is the simplest and most common method of asexual reproduction.

Binary Fission in Amoeba:

During binary fission in amoeba, *i.e.,* unicellular eukaryote, the nucleus of parent organism divides into two. It is followed by the division of cytoplasm. So two daughter cells of almost equal size are formed. Daughter cells grow in size and then divide again.

Q.8.(a) Write a note on Mendel's Law of Segregation. (4)

Ans For Answer see Paper 2015, (Group-I), Q.8.(a).

(b) Write a note on nitrogen fixation. (3)

Ans For Answer see Paper 2015, (Group-II), Q.8.(b).

Q.9.(a) Write a note on batch fermentation and continuous fermentation in fermenter. (4)

Ans For Answer see Paper 2013, (Group-I), Q.8.(b).

(b) Describe the mode of action of vaccines. (3)

Ans **Mode of action of vaccines:**

Pathogens have specific proteins called as 'antigens'. When these pathogens enter into the host's body, these stimulate the formation of antibodies. The antibodies bind with pathogens and destroy them. When a vaccine or weak pathogen is introduced into the blood, the white blood cells are stimulated. The lymphocytes B make antibodies against weak pathogens. These antibodies remain in the blood and provide protection against pathogens. If original pathogens enter into the blood, the preexisting antibodies kill them.

Part-III

(Practical Part)

Note: Attempt any TWO (2) questions.

A-(i) Write the procedure of experiment conducted to identify the presence of carbon dioxide in air exhaled from lungs. (3)

Ans For Answer see Paper 2014, (Group-I), Q.A-(i).

(ii) Draw the diagram of experiment set up to detect the presence of tar in cigarette smoke. (2)

Ans For Answer see Paper 2015, (Group-I), Q.A-(i).

B-(i) You observed experiment to investigate chemical composition of bone. Write procedure for this experiment. (3)

Ans For Answer see Paper 2016, (Group-I), Q.B-(i).

(ii) Draw the labeled diagram of observed Rhizome. (2)

Ans For Answer see Paper 2014, (Group-II), Q.C-(i).

C-(i) Write down the procedure of experiment for the fermentation of flour. (3)

Ans **Required Material:**

Flour, beaker, baker's yeast, jar water, bowl.

Procedure:

For a few minutes, soak one tablespoon of baker's yeast in a small quantity of water. Take a bowl and put some flour in it. After mixing water and flour, add yeast in it and make dough. For 4 to 5 hours, keep this bowl at room temperature.

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Observation:

We can observe; yeast produces enzymes that help in glucose fermentation of flour.

Finally, it is concluded that yeast ferments the flour.

(ii) What is an ecosystem? (2)

Ans The self-sufficient unit of an environment that is formed as a result of interactions between its biotic community and the abiotic components is known as an ecosystem.